

WILDLIFE HARVEST AND POPULATION STATUS REPORT

NORTHERN BOBWHITE - 2005

Thomas V. Dailey, Resource Scientist

QUAIL ABUNDANCE

Quail roadside surveys were conducted by Conservation Agents and Protection Division volunteers during August 1-23 in 109 of Missouri's 114 counties. Several metropolitan counties are not measured because of high traffic levels (Clay, Jackson, St. Louis and St. Charles counties), and Washington county was not surveyed because of time constraints. Surveyors count the number of quail they see while driving 20 M.P.H. along permanent 30-mile gravel road routes. These observations provide an *index* of quail abundance, and not an estimate of quail across the landscape. Moreover, because only a tiny fraction of any one county is sampled, the index best represents quail population trends at large scales, e.g., statewide and multi-county blocks (e.g., zoogeographic regions and MDC administrative regions). The statewide long-term trend of the index relates fairly well to other statewide indices of quail abundance (e.g., North American Breeding Bird Survey, Missouri quail harvest estimates). The routes are almost entirely through private land, so the quail index is a reflection of conditions on Missouri's private lands.

This year's index of 2.86 quail/route is a record low since the survey began in 1983. The previous record low was 3.46 in 2001. The 2005 index is 21% below the count for 2004, and 64% below the long-term average (7.94, 1983-2004) (Table 1). Although the total quail index is down, production is up. The mean statewide brood count of 0.27 per route is 35% above the 2004 index of 0.20, but 50% below the long-term average (0.53, 1983-2004) (Table 1). Compared to 2004, average brood size increased from 7.4 to 11.1 (49% increase), and there were 45% more chicks in total counted per route. On the other hand, the number of adults counted fell by 36%.

The cause of the disparity in abundance of chicks and adults is unknown. The winter was relatively mild, so we expected an abundance of quail in the spring. High production could have resulted from the relatively dry and mild weather during May, which is usually the peak in nesting. Roadside quail counts are partly dependent on the species' inclination to leave dew-soaked fields in favor of drier gravel roads. Because of drought this year (dew index during survey was 1.3 in 2005 and 1.8 in 2004; range 0-2), adult quail might have been less apt to seek out roads.

Regional average total quail counts were relatively high (4-5 quail/route) in the Northern Riverbreaks and Northeastern Riverbreaks zoogeographic regions, moderate (2.9-3.8 quail/route) in the Northwestern Prairie, Western Prairie and Mississippi Lowlands, low (about 1.7 quail/route) in the Western Ozark Border and Ozark Plateau, and extremely low (0.25 quail/route) in the Northern & Eastern Ozark Border region (Table 1, Figures 1 and 2).

In addition to surveying fixed routes, 95 of the surveyors provided their perception of quail abundance in each county. Their impressions are based on observations of quail over the entire county during May-July, observations of farmers, etc. This year's ratings generally agree with the

record low quail index. Similar to 2004, none of the counties were judged as excellent. Counties rated as good dropped from 10 in 2004 to 4 this year. Counties judged as fair changed from 50 in 2004 to 47 this year, and counties rated poor (48) were unchanged.

Prospects for the 2005 hunting season are fair. Although the total index is down, brood counts were up in some locations, and much-improved nesting conditions following August rains could mean hunters will encounter late-season broods that are not accounted for in this survey. Counties with a rating of 'good,' or a quail count >10 (including counties where quail are counted on a separate ring-neck pheasant route) included Camden, Daviess, Grundy, Knox, Linn, Livingston, Macon, Marion, Mississippi, Morgan, Nodaway, Randolph, Saline, Scott, Shelby, St. Clair and Sullivan.

The overall continued dearth of quail reflects Missouri's widespread poor habitat. The list of problems is long and includes over-grazed pastures, overly thick stands of grass in old fields and Conservation Reserve Program fields, natural replacement of woody thickets by large canopied trees, replacement of woody draws by grass waterways, removal of woody cover in crop fields and along roadsides, red cedars invading areas once occupied by grasses and weeds, monocultures of crops, grains and forages, etc. There are programs to remedy these problems, including the MDC quail plan, the Northern Bobwhite Conservation Initiative, mid-contract management in the USDA Conservation Reserve Program (CRP), upland buffers in the CRP, and habitat-management organizations such as Quail Unlimited and Pheasants/Quail Forever.

2004 HUNTING SEASON

MDC collects harvest information from a post-season mail survey of a random sample of Missouri small game permit holders. The estimated number of licensed hunters that hunted quail during the 2004 season was 40,665 (Figure 3), a minor change from 41,497 in 2003, but 62% below the long-term (1967-2003) average of 106,939 hunters. The harvest of 425,127 was a minor change from the 426,590 harvested in 2003, but 75% below the long-term average (1967-2003) of 1,700,838.

Hunting success was fair, with the average number of quail bagged per day of hunting of 1.7 being unchanged from 2003, but 25% below the long-term (1967-2003) average of 2.3. Hunting success was relatively high (1.8-2.1 quail bagged/day) in the Western Ozark Border, Northeastern Riverbreaks and Northern Riverbreaks zoogeographic regions, moderate (1.6-1.7 bagged/day) in the Northwestern Prairie, Western Prairie, Ozark Plateau, and Mississippi Lowland regions, and lowest (1.3 bagged/day) in the Northern & Eastern Ozark Border region.

Although quail harvest and hunter numbers have reached alarmingly low numbers, hunting success has not declined as dramatically. Over 1967-2004, the average daily bag trend has declined 1.3% per year, whereas the harvest trend has declined 2.6% per year. Moreover, the sport still is a major recreational activity with an average of 6 days in the field during the 2004 season per hunter, 10.5 quail bagged per hunter, and a total of 244,186 days spent in the field.

TABLE 1. Mean number of individual quail and broods per route observed by Conservation Agents and volunteers along 109, 30-mile routes during 1-23 August, 2005.

Zoogeographic Region ¹	Routes	Total Quail			Broods		
		2005	2004	1983-2004 Average	2005	2004	1983-2004 Average
N. W. Prairie	11	2.91	5.00	8.53	0.18	0.36	0.59
N. Riverbreaks	11	4.27	5.54	8.58	0.36	0.27	0.56
N. E. Riverbreaks	20	4.95	5.80	10.44	0.30	0.20	0.66
W. Prairie	12	3.83	3.42	17.71	0.58	0.17	1.18
W. Ozark Border	13	1.62	2.85	7.66	0.15	0.15	0.50
Ozark Plateau	23	1.78	3.04	3.05	0.17	0.25	0.21
N. & E. Ozark Border	12	0.25	0.50	2.99	0.00	0.00	0.21
Mississippi Lowland	7	3.29	1.29	6.50	0.57	0.14	0.55
STATEWIDE	109	2.86	3.90	7.94	0.27	0.20	0.53

¹See figure 1.



FIGURE 1. Zoogeographic regions of Missouri.

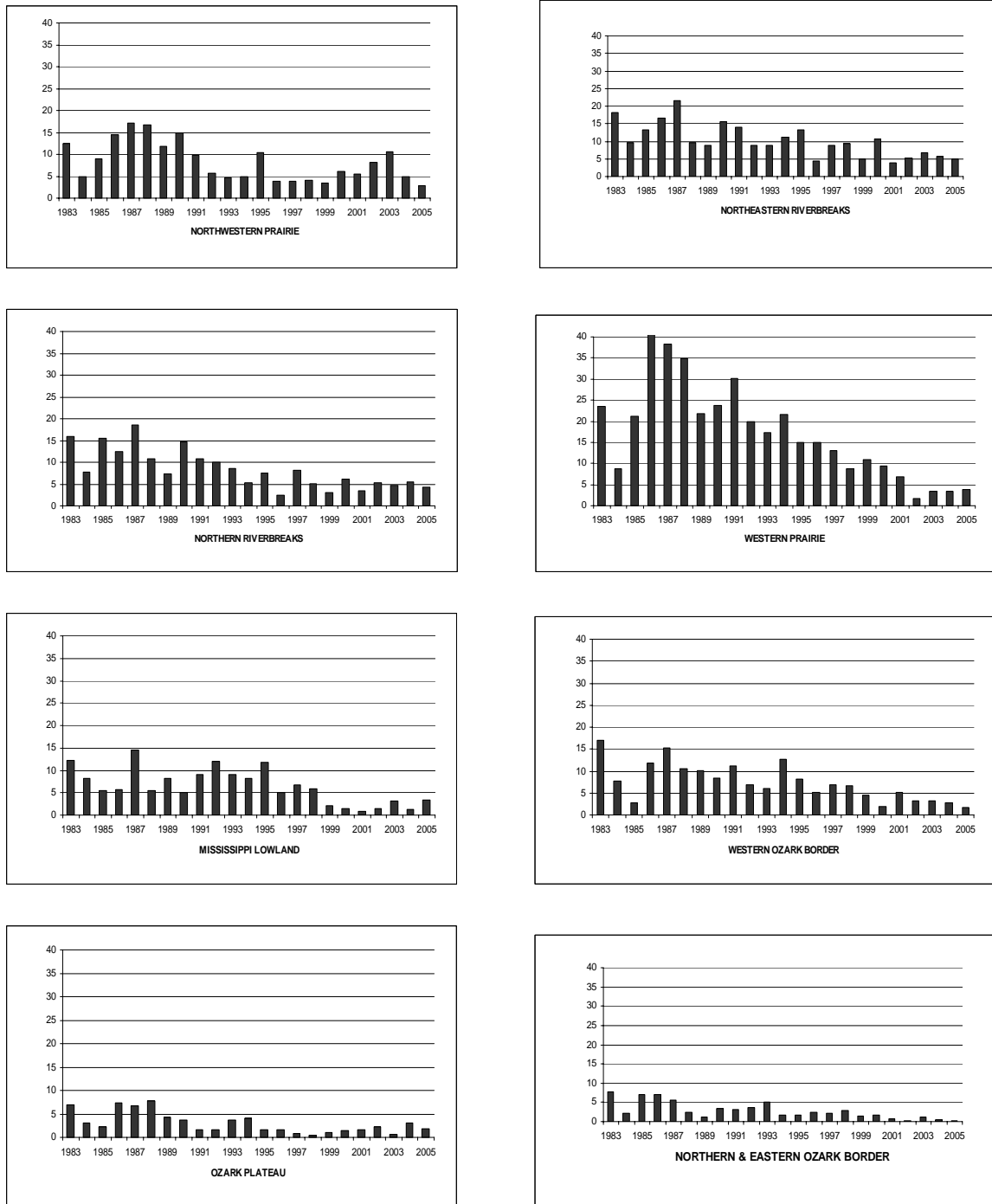


FIGURE 2. Mean quail per 30-mile route, by zoogeographic region, 1983 – 2005.

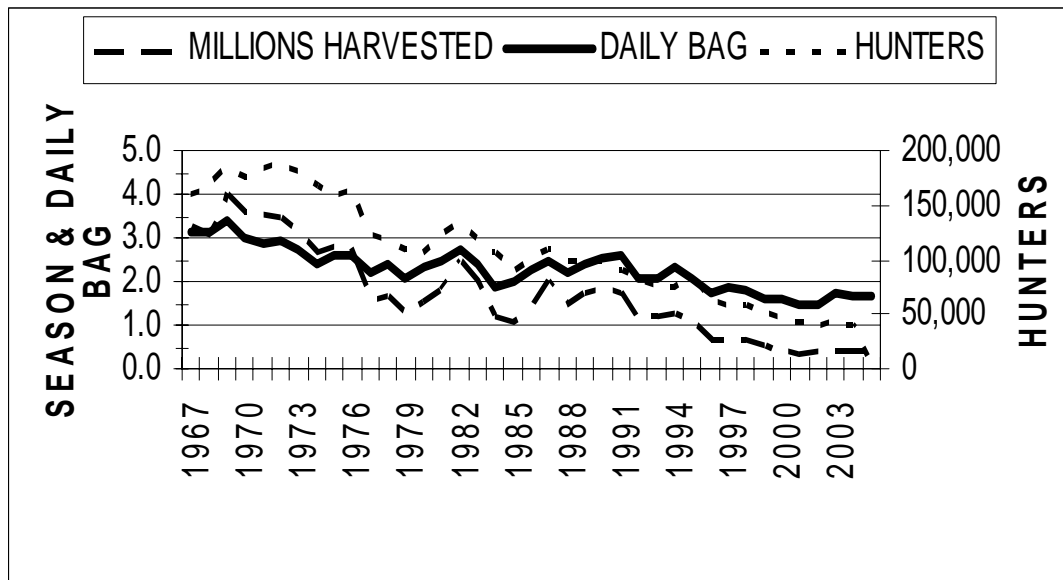


FIGURE 3. Missouri quail hunting trends during 1967 – 2004. Hunting season bag in millions and daily bag (a few birds per day) are combined on left axis. For example, during 2004, 41,497 hunters killed 0.4 million quail (426,590), and the average kill per day was 1.7.